

**ENCAPSULATION OF SENSITIVE**  
**LIQUID COMPONENTS INTO A MATRIX TO OBTAIN DISCRETE**  
**SHELF-STABLE PARTICLES**

**ABSTRACT OF THE DISCLOSURE**

5           A liquid encapsulant component which contains an active, sensitive  
encapsulant, such as a live microorganism or an enzyme dissolved or dispersed in  
a liquid plasticizer is admixed with a plasticizable matrix material. The matrix  
material is plasticizable by the liquid plasticizer and the encapsulation of the  
active encapsulant is accomplished at a low temperature and under low shear  
10 conditions. The active component is encapsulated and/or embedded in the  
plasticizable matrix component or material in a continuous process to produce  
discrete, solid particles. The liquid content of the liquid encapsulant component  
provides substantially all or completely all of the liquid plasticizer needed to  
plasticize the matrix component to obtain a formable, extrudable, cuttable,  
15 mixture or dough. Removal of liquid plasticizer prior to extrusion is not needed to  
adjust the viscosity of the mixture for formability. Release of an active component  
from the matrix may be delayed or controlled over time so that the active  
component is delivered when and where it is needed to perform its intended  
function. Controlled release; discrete, solid particles which contain an  
20 encapsulated and/or embedded component such as a heat sensitive or readily  
oxidizable pharmaceutically, biologically, or nutritionally active component are  
continuously produced without substantial destruction of the matrix material or  
encapsulant.